

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for producing a hydroxyl-modified ethylene- α -olefin copolymer, the method comprising:

mixing 100 parts by weight of an ethylene- α -olefin copolymer and 0.1 to 20 parts by weight of a peroxide having a hydroperoxy group, wherein the peroxide has a 10-hour half-life temperature and a 1-minute half-life temperature; and

heating a mixture containing the peroxide and the ethylene- α -olefin copolymer at a temperature ranging between the 10-hour half-life temperature and the 1-minute half-life temperature of the peroxide without causing cross-linking of the ethylene- α -olefin copolymer.

2. (Currently Amended) A method for producing a hydroxyl-modified ethylene- α -olefin copolymer, the method comprising:

mixing 100 parts by weight of an ethylene- α -olefin copolymer, 0.1 to 20 parts by weight of a peroxide having a hydroperoxy group and a radical generator having a radical generating group so that not more than 1 mole of the radical generating groups are present with respect to 1 mole of the hydroperoxy groups, wherein said peroxide has a 10-hour half-life temperature and said radical generator has a 10-hour half-life temperature not higher than the 10-hour half-life temperature of the peroxide; and

heating a mixture containing the ethylene- α -olefin copolymer, the peroxide and the radical generator at a temperature ranging between the 10-hour half-life temperature of the radical generator and 220°C without causing cross-linking of the ethylene- α -olefin copolymer.

3. (Previously Presented) The method according to claim 2, wherein the peroxide is t-butyl hydroperoxide, t-amyl hydroperoxide, t-hexyl hydroperoxide, t-octyl hydroperoxide, cumene hydroperoxide or diisopropylbenzene hydroperoxide.

4. (Previously Presented) The method according to claim 2, wherein said mixing includes kneading.

5. (Previously Presented) The method according to claim 2, wherein the ethylene- α -olefin copolymer has Mooney viscosity of 10 to 250 at 100°C.

6. (Previously Presented) The method according to claim 2, wherein the radical generator is a compound having a 1-minute half-life temperature not higher than 195°C.

7. (Previously Presented) The method according to claim 2, wherein the ethylene- α -olefin copolymer is a bipolymer of ethylene and an α -olefin or a terpolymer of ethylene, an α -olefin and a diene.

8. (Previously Presented) A hydroxyl-modified ethylene- α -olefin copolymer produced by the method according to claim 2, the modified copolymer containing 0.001 to 1 mole of hydroxyl groups per 1 kg of the modified copolymer and having Mooney viscosity of 10 to 250 at 100°C.

9. (Original) A hydroxyl-modified ethylene- α -olefin copolymer composition comprising:
the hydroxyl-modified ethylene- α -olefin copolymer according to claim 8; and
at least one member selected from the group consisting of a thermoplastic resin, a filler, an antioxidant, a light stabilizer, a plasticizer, a lubricant, a flame retardant and a colorant.

10. (Previously Presented) The method according to claim 1, wherein the peroxide is t-butyl hydroperoxide, t-amyl hydroperoxide, t-hexyl hydroperoxide, t-octyl hydroperoxide, cumene hydroperoxide or diisopropylbenzene hydroperoxide.

11. (Previously Presented) The method according to claim 1, wherein said mixing includes kneading.

12. (Previously Presented) The method according to claim 1, wherein the ethylene- α -olefin copolymer has Mooney viscosity of 10 to 250 at 100°C.

13. (Previously Presented) The method according to claim 1, wherein the ethylene- α -olefin copolymer is a bipolymer of ethylene and an α -olefin or a terpolymer of ethylene, an α -olefin and a diene.

14 (Previously Presented) A hydroxyl-modified ethylene- α -olefin copolymer produced by the method according to claim 1, the modified copolymer containing 0.001 to 1 mole of hydroxyl groups per 1 kg of the modified copolymer and having Mooney viscosity of 10 to 250 at 100°C.

15. (Previously Presented) A hydroxyl-modified ethylene- α -olefin copolymer composition comprising:

the hydroxyl-modified ethylene- α -olefin copolymer according to claim 14; and

at least one member selected from the group consisting of a thermoplastic resin, a filler, an antioxidant, a light stabilizer, a plasticizer, a lubricant, a flame retardant and a colorant.

16. (New) The method according to claim 1, wherein said heating includes replacing a hydrogen atom of the ethylene- α -olefin copolymer by a hydroxyl group of the peroxide having a hydroperoxy group.

17. (New) The method according to claim 2, wherein said heating includes replacing a hydrogen atom of the ethylene- α -olefin copolymer by a hydroxyl group of the peroxide having a hydroperoxy group.